2023-2 Capstone Design Project

자리 있나요?
Empty Seats?

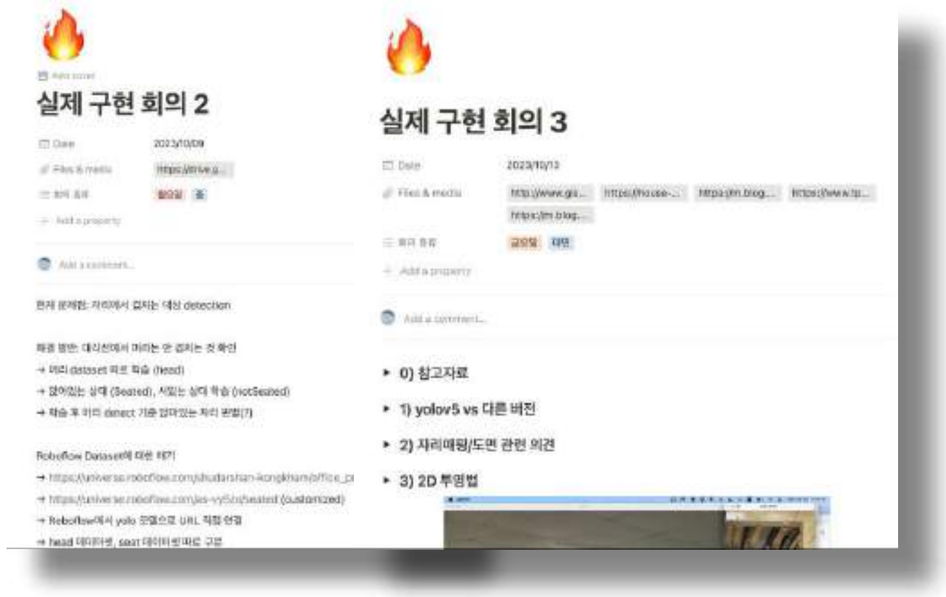
Weekly progress meeting # 2

Team A (A's) 김도엽 박재윤 우다연 최지민

Contents

What has been done & roles

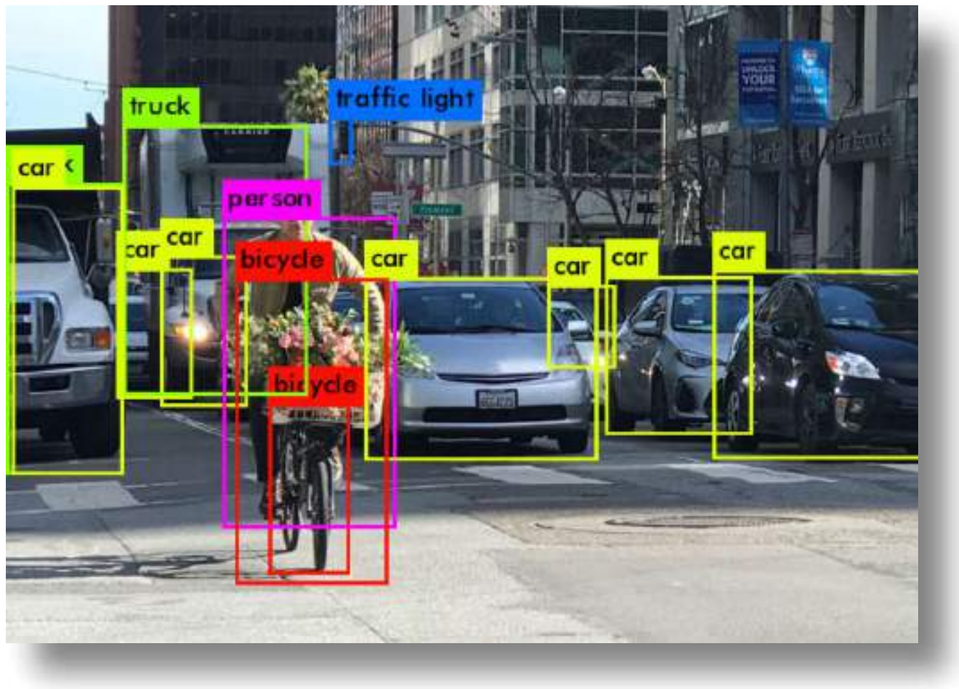
실제 구현 회의 1	2023/10/06	금요일	대면	
실제 구현 회의 2	2023/10/09	월요일	줌	https://drive.g...
실제 구현 회의 3	2023/10/13	금요일	대면	http://www.gis...



1	Performance comparison	김도엽, 우다연
2	Webcam testing	김도엽
3	Blur out faces	최지민
4	Perspective transformation	김도엽, 우다연
5	Seat Separation	박재윤

PART 00 I YOLOv5

- **Background - Object detection**



PART 00 I YOLOv5

- **Background - Object detection**

Determine what the objects is

Display where the object is located

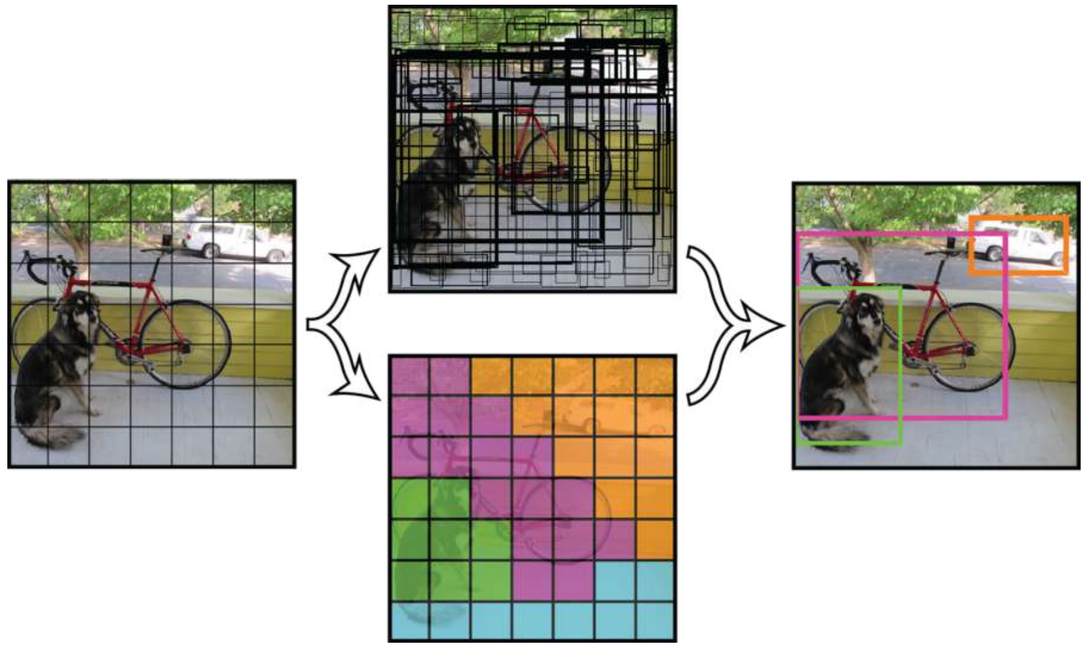
Classification & localization of multiple objects

PART 00 I YOLOv5

- **Background - YOLO**

Mark the **locations** where the objects are likely to exist with **bounding boxes**

Divid the image into **grids**

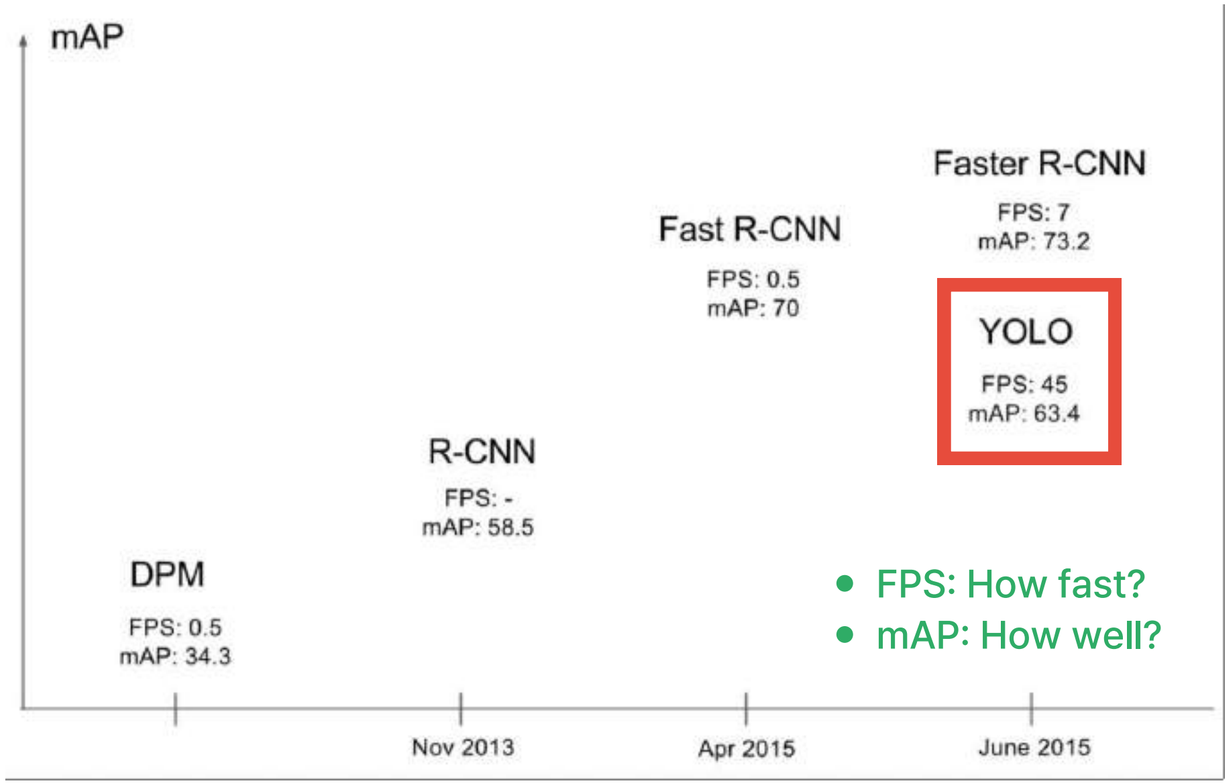


Select the **bounding boxes** that are most likely to have an object

Indicates the **class** to which each grid belongs

PART 00 I YOLOv5

- **Background - YOLO**



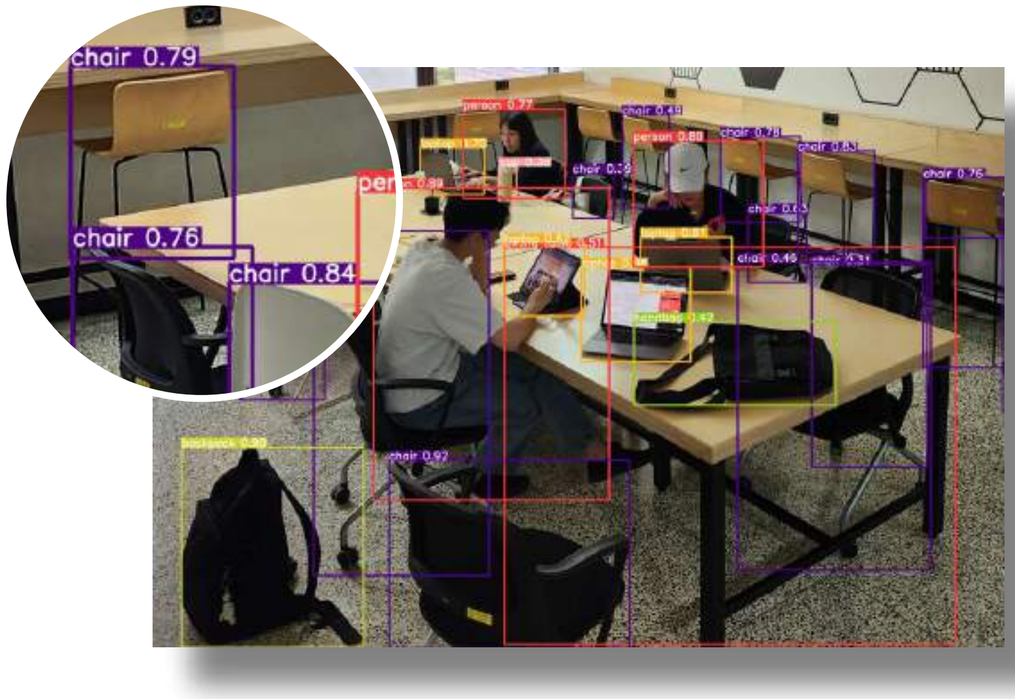
YOLO > Other models

- Much **faster**
- More **accurate**

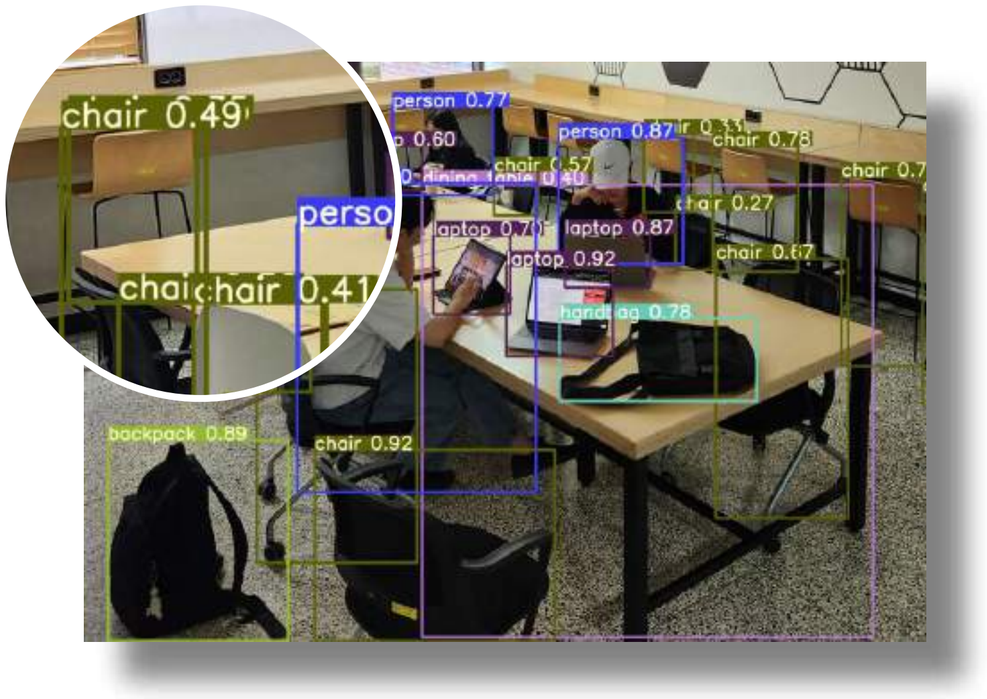
Appropriate for real-time object detection

PART 01 I Version performance comparison

YOLOv5x



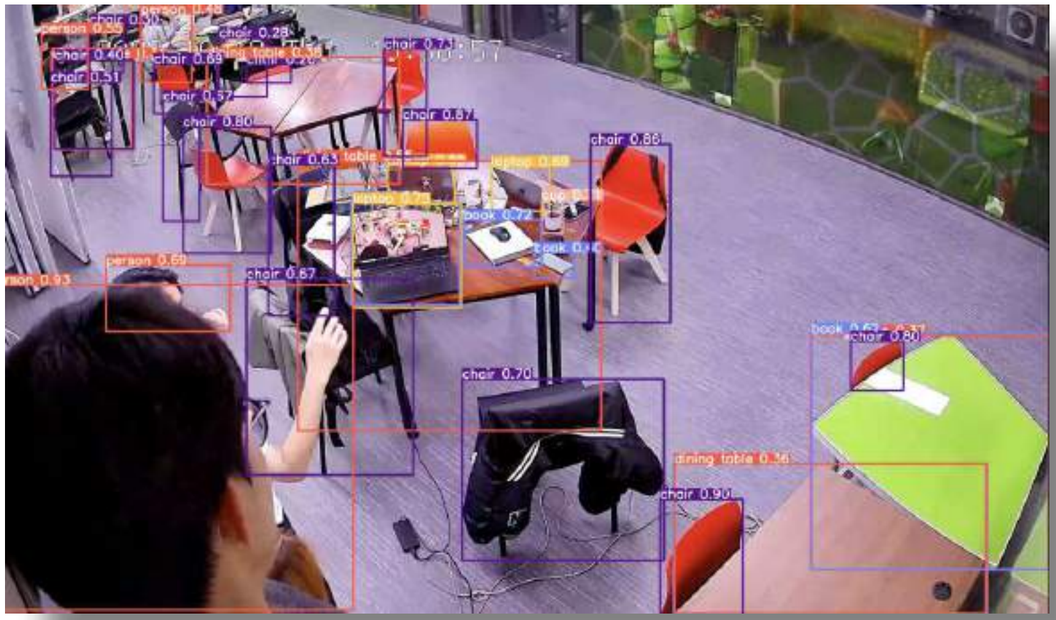
YOLOv7-E6E



Both models have similar performance,
but YOLOv5 is much easier to use

PART 02 I Webcam testing

VIGI C440

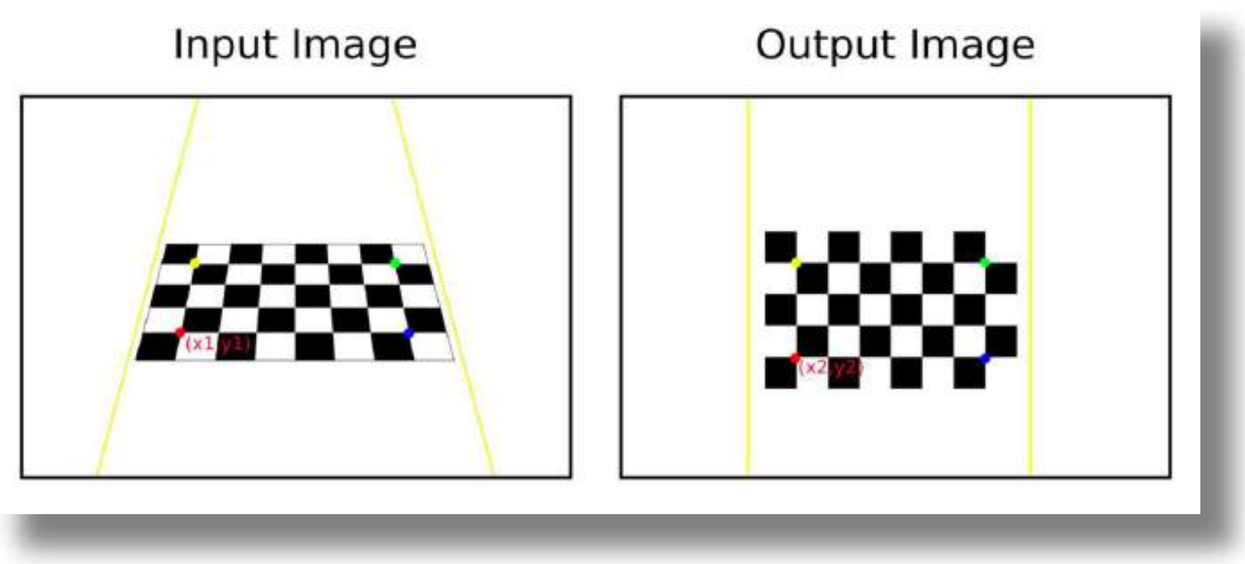


PART 03 I Blur out faces

Blurred the inside of the bounding boxes

PART 04 I Perspective transformation

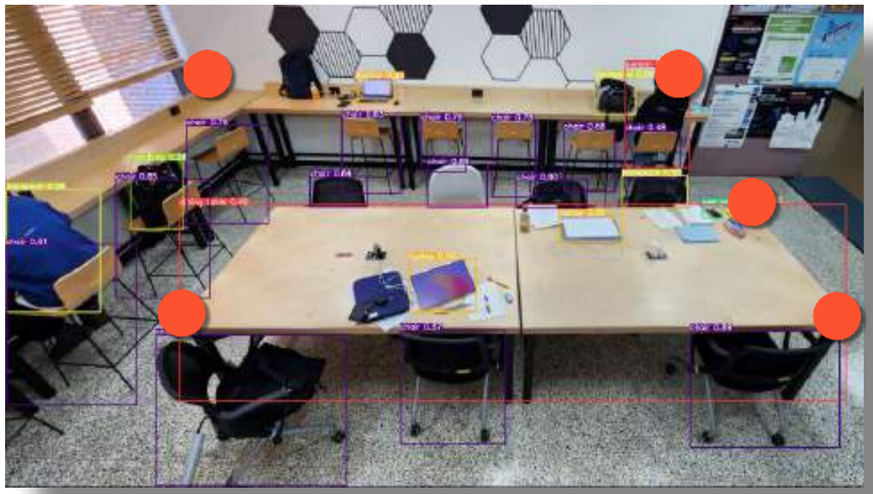
OpenCV Perspective transform



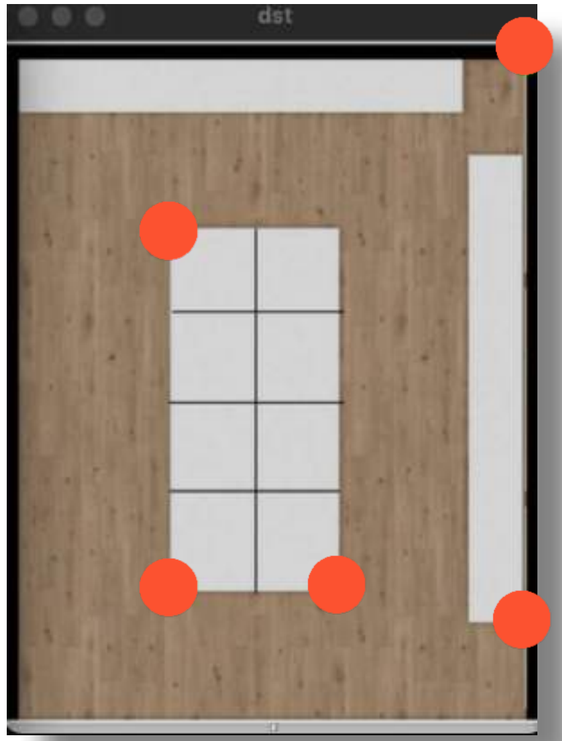
Bird-eye view

PART 04 I Perspective transformation

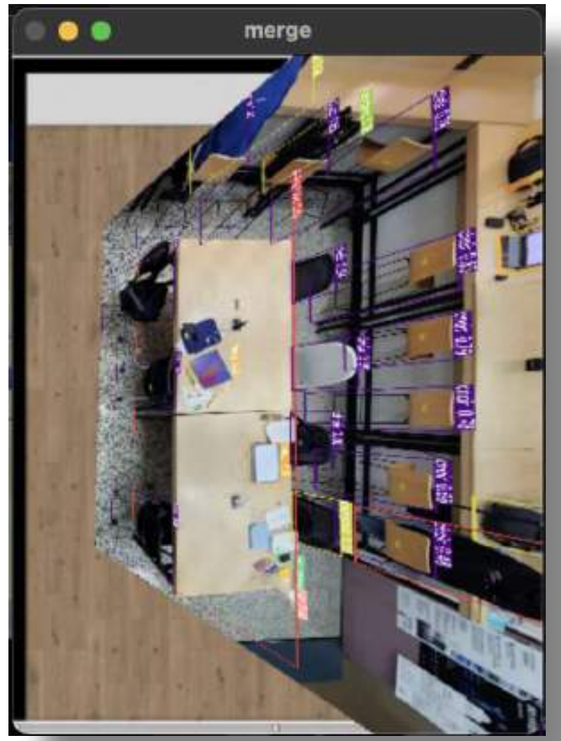
Original image



2D space



Transformed image



PART 05 I Seat separation

Transformed image

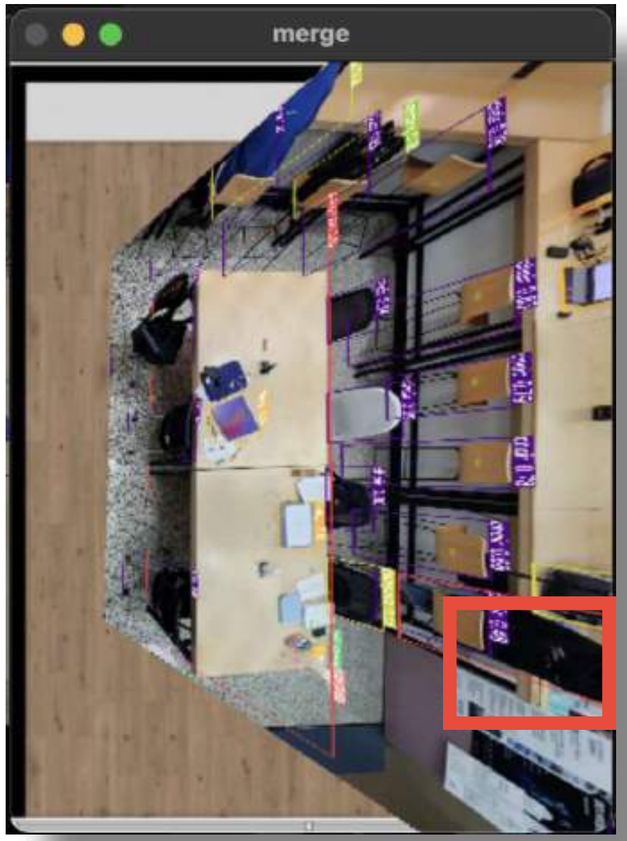


Image with labels only

Seating chart

Occupied

Future plans

	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15
Refinement of the Topic														
AI Model Design														
Data Preprocessing														
Model & Algorithm Implementation														
UI & UX Design & Implementation														
Beta Service Launch														
Incorporation of Feedback & Revisions														

Future plans

1	Connecting camera & server, testing data transmission	김도엽, 박재윤
2	Detecting seat occupancy from detected people and objects	우다연, 최지민
3	Sending seat availability data to Server	우다연, 최지민
4	Web design & implementation	김도엽, 박재윤

Capstone Global Design
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THANK YOU

자리 있나요? Empty Seats?

TEAM A (A's) 김도엽 박재윤 우다연 최지민